Former Coastal Refinery Engineered Wetlands

The Bureau of Environmental Remediation has collaborated with El Paso Merchant Energy-Petroleum Company, Kinder Morgan, Inc., and MWH Global to conduct the cleanup of an environmentally contaminated site in south-central, Kansas. The Coastal Refinery Site, located just north of El Dorado, Kansas, encompasses approximately 400 acres. The refinery was built and began operating in 1917. After refining operations were discontinued in 1993, asphalt blending and terminal operations continued at the site until 2004. Interim remedial measures have been conducted at the site in an effort to meet waste water pond closure requirements and to address petroleum and impacted groundwater and soil and chlorinated-impacted groundwater.

Demolition of the above grade processing units and storage tanks (above) and installation of a groundwater recovery trench was completed in 2006. Pond closure and construction of an alternate water treatment system began in 2011. Contaminated soil, pond sediment, and on-site concrete fines were collected in the west pond and stabilized to reduce contaminant mobility. Additional petroleum impacted soil from the central portion of the site was spread out in approximately 8-inch thick lifts within four landfarm cells that totaled 26.6 acres.

Engineered wetlands were constructed in the former waste water ponds to satisfy the need for stable, long-term, low energy, and low cost groundwater treatment (below left). Impacted groundwater flows from the interceptor trench and an on-site basin into an underground oil/water separator followed by a cascading aerator and then into a precipitation/settling basin before reaching the wetlands. The wetlands consist of three stages to treat contaminants by volatilization, biodegradation, sorption, and phytoremediation. Wetland construction activities were completed in spring 2013 and have effectively provided treatment to contaminated groundwater at the site (below right).